Advant news

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The ABB Advant Power news bulletin

Welcome to the first issue of the Advant Power news

Dear Readers,

I'm pleased to bring you our first Advant news intended for users of the Advant Power Control system. You might wonder why we would start a newsletter now for a control system that was introduced to the Power Generation sector more than 15 years ago. It is not a marketing oversight, so let me assure you there are good reasons.

First, it's an opportunity to remind you that our Advant Power Control system has reached what the fast-moving world of IT calls a mature stage. And it's a chance to repeat ABB's commitment to 'Evolution without obsolescence', which is reflected in the new products that keep Advant compliant with new IT requirements. This news bulletin will help us share the news about ABB's investments in new products and software versions for the Advant Power Control platform.

Secondly, we would like to tell you about all of the upgrade possibilities designed to increase the performance of this system as well as the seamless, proven migration possibilities for the HMI based on state-of-the-art hardware solutions, both of which can help secure your equipment investments.

And finally, we want to keep you up-to-date regarding Advant User group events, ABB events in various regions as well as status reports and platform notes, which will be of interest to customers who have not yet signed up for a service contract and lack these announcements.

We plan to issue three newsletters annually, packed with valuable information for you. In addition, we encourage your feedback and invite you to share your interests and comments with us. We are delighted to provide any additional information or advice you may need.

I wish you happy reading.

Kind regards
Matthias Bolliger
VP, Head of Global Execution
ABB Power Systems

ABB delivers HMI upgrade in “virtually” no time

ABB has upgraded the complete human machine interface (HMI) system at the Swanbank E power station with the latest control system and IT technology.

Swanbank E is a highly efficient 385 megawatt (MW) gas-fired combined-cycle power station, located in Queensland, Australia. Owned by Stanwell Corporation Limited, Queensland’s largest electricity generator, Swanbank E featured the largest gas turbine in Australia when it was commissioned in 2002.

The control system consists of ABB Advant AC160 / AC450 controllers for gas turbines (Egatrol 8), steam turbines (Turbotrol 8), and all DCS applications, including the water-steam cycle and balance-of-plant. The original HMI solution from the late 90s was built on Unix-based Advant OS500 operator stations and an IMS (information management system) with Optimax performance monitoring functions included.

After 10 years of successful operation, the customer decided to upgrade the control system “to ensure continued reliability, availability, functionality, data security, and OEM hardware and software support of the operator interface until the end of the serviceable life of the station 2023.”

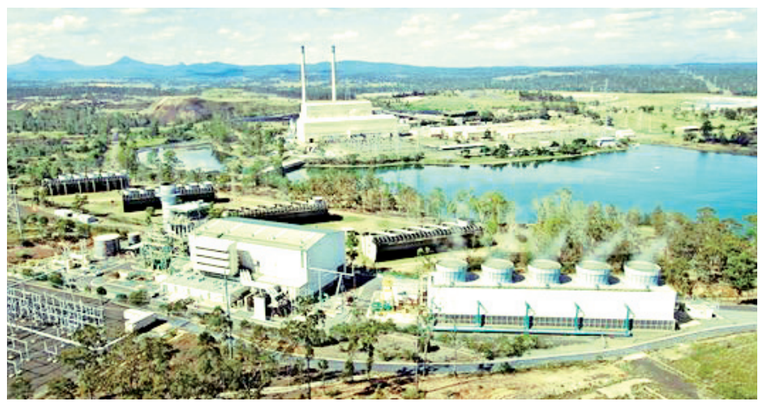
Although the plant’s original control system hardware was meeting performance expectations and is actively supported by ABB, on the HMI side the Advant OS500 operator stations and IMS historian were nearing the end of their working lives. In addition, these days Windows-based solutions are more commonly used than Unix-based systems.

An upgrade solution for this plant was found thanks to ABB’s strong commitment to product evolution without obsolescence and the Advant platform. It is ABB’s System 800xA for Advant Master, combined with the Power Generation Information Manager (PGIM).

ABB has installed this combination in many similar CCPP plants around the world, in both OS500 upgrades and green-field installations. It is the perfect replacement, providing all OS500 and IMS functionality in addition to the full power of Extended Automation System 800xA, but for Swanbank E ABB went even further.

ABB’s concept was not only to deliver a one-to-one replacement but also to upgrade the whole system architecture with the latest technology and concepts.

The ABB System 800xA solution is not just a one-to-one replacement of the old operator stations and IMS, but a full system architecture upgrade incorporating the latest technology and concepts. The most radical change includes the complete virtualization of all HMI servers based on VMware ESXi® server technology (see box).



Benefits of Control System Virtualization

ABB and System 800xA enable customers to turn modern technologies like virtualization to their advantage, by providing a smaller footprint and lower maintenance costs, while increasing availability in a pre-tested, supported environment.

Full support for state-of-the-art virtualization technology
ABB uses the VMware® ESXi server, which can be used in 800xA systems to combine multiple 800xA server applications on a single computer.

Higher availability and functionality with less hardware
System 800xA can achieve higher availability and functionality using less hardware when installed in a virtualized environment, due to System 800xA’s software architecture and inherent server redundancy.

Smoother installation and upgrades
Virtualization allows ABB to deliver systems that not only provide excellent energy savings and reduced hardware footprints, but also enable efficient support and maintenance of the system over its entire lifecycle.

Higher availability and easier maintenance with Storage Area Network
Virtual machines can either be stored on hard disks localized in the ESX server, or on a network storage device such as a Storage Area Network (SAN) server.

Replacing obsolete PCI-based RTA boards with Ethernet-based PU410 units and completely decoupling the process network from the server hardware meant server virtualization was the way forward. Virtualization simplifies how servers are managed and maintained. Running multiple virtual machines on a single physical machine drastically reduces hardware requirements, operating expenses, and increases availability. All HMI servers including PGIM and Optimax now run on two physical servers, making no compromise in terms of availability and reliability.

Virtualization enables an enterprise to better manage updates and rapid changes to the operating system and applications, and can dramatically improve the efficiency and availability of resources and applications.

Keeping to a tight schedule was largely simplified by taking advantage of modern server virtualization concepts.

Following the successful HMI upgrade, ABB optimization and process specialists also retuned the existing Optimax performance monitoring system and upgraded all controllers to the latest firmware versions to improve and correct performance. This also enabled use of the latest Windows-based engineering tools for the Advant platform to simplify maintenance and control application tuning.

From the start of the project, it was clear the schedule would be very tight and had to be aligned with the concurrent C-inspection of the turbine itself. In addition, this was not just a case of ABB delivering the new control system hardware and installing it as approved by the customer during FAT. From the beginning, there was also a strong requirement to make use of Stanwell’s existing IT infrastructure. For this, ABB duplicated parts provided by the customer in the test-lab for all engineering and testing activities, including FAT. Again, this task was largely simplified with modern server virtualization concepts.

Close cooperation with Stanwell personnel during planning, testing and commissioning enabled ABB to execute the entire project within 6 months. The upgraded system was installed and commissioned within a fixed three week time limit. As the new system was commissioned, the new virtual servers were integrated into the customer’s network and IT infrastructure, and the complete MB300 process network was upgraded and cleaned up. Plant operation and supervision was not interrupted.

In addition to the expertise of many experienced engineers, this achievement relied on the advantages of server virtualization technology combined with the flexible architecture of ABB’s Advant and 800xA platforms.

Peter Hoerlein, Senior Electrical Engineer, Stanwell Ltd. says about the project:

Peter Hoerlein
Senior Electrical Engineer
Stanwell Corporation Limited

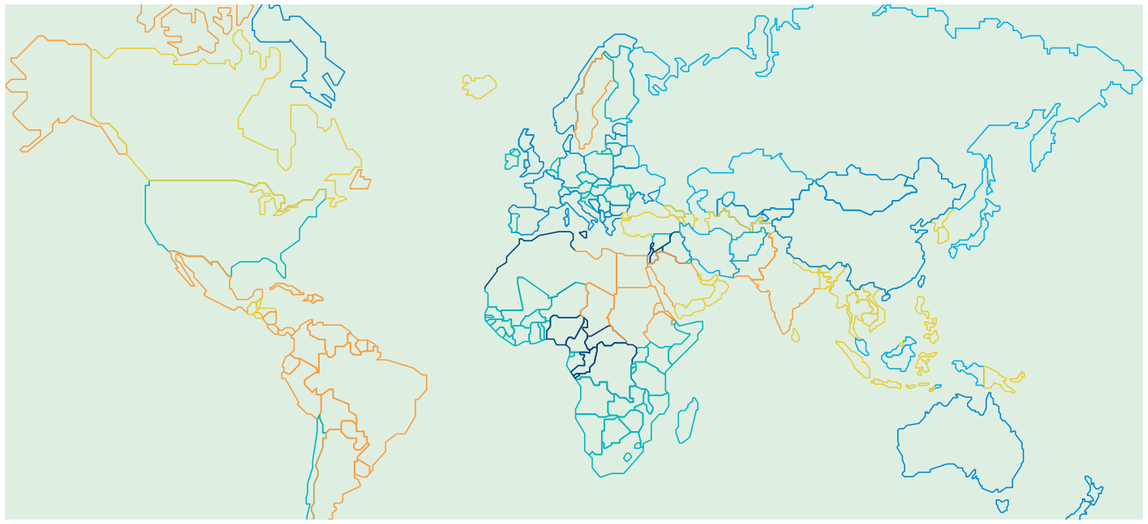
The Unix based Historian and OS500 Operator Interface at Swanbank had reached the end of their service life and to ensure ongoing availability a reliability a replacement project was scheduled for the C3 major inspection in 2012.

ABB was selected as sole supplier to upgrade the Unix system to the new 800xA with PGIM. ABB were selected because of their experience and expertise with the Advant control system, the MB300 bus and HMI graphics. One of the key drivers for a successful outcome of the project was the like for like transformation of the Operator Interface Graphics. ABB were able to deliver this to an exceptional standard and it was one of the highlights of the project and the Operators quickly adapted to the new interface. One of the other key drivers of the project was to leaver of the existing VMware ESXi® environment at Swanbank. ABB was able to provide excellent technical support for the integration of this technology into our control system environment.

The VMware solution allowed for faster delivery using a very small amount of onsite real-estate. All the 800xA and PGIM servers were installed into one cubicle.

One of the features of the 800xA system is its ability to interface to multiple control systems using a single operator interface. Part of this project required the implementation of a PLC connect system to interface to the Water Treatment Plant controlled by Siemens PLCs. The control and monitoring of the Water Treatment Plant was easily and seamlessly integrated into the 800xA system giving the operator one interface for the main Combined Cycle Gas Turbine plant and the Water Treatment Plant.

After an initial project delay due to the extended negotiations on terms and conditions, ABB were able to deliver the project on-time and in full. ABB are continuing to support me through the Sentinel Program and plant support service level agreement.



Welcome to the ABB events

Here you can find all events and conferences from the power generation industry that may be of interest for you.

APCUC, the Advant Power Control User Conferences are warmly recommended to attend. These are hosted by the Advant users themselves and the focus is really on meeting, sharing experiences and exchanging best practices. In addition, they are the perfect platform to experience the latest Advant Power product updates and system news by ABB. If you would like to participate in one of the two Advant User Conferences, please do not hesitate to contact us:

Advant Power Global Execution Center
ABB Switzerland – Power Systems
Matthias Bolliger
Bruggerstrasse 72
CH-5400 Baden, Switzerland
Phone: +41 (0)844 845 845
Email: plantcontrol.support@ch.abb.com

Event	Start date	End date	City	Country
Power-Gen Europe	June 4	June 6	Vienna	Austria
APC User Conference USA	August 15	August 16	Washington DC	USA
Power-Gen Asia	October 2	October 4	Bangkok	Thailand
Power-Gen International	November 12	November 14	Orlando	USA
APC User Conference Australia	November 21	November 22	Brisbane	Australia

ABB control systems extends its life cycle support

A few years ago, ABB was asked to clarify the life cycle support policy for control systems and associated components. At that time we looked ahead and stated that select products of our DCS Systems would remain in the “Active” life cycle phase until at least the year 2015. This statement covered the core control functions from our latest offering of controllers, engineering tools, and control networks.

In addition, we stated that we would continue to provide support for an additional 10 year period, at a minimum, in the event a component was removed from the “active” phase. This was the strongest written life cycle statement at the time. Recently there has been some confusion. Some people, by putting these dates together, concluded that ABB considered 2025 as the end date of our commitment.

For Advant Controller 450 the previously announced minimum lifecycle support to 2015 for active lifecycle and 2025 for lifecycle support has been lifted. Lifecycle support for Advant Controller 450 will be extended with no end date specified. For Advant Controller 450 this lifecycle support includes core functions, such as basic unit, processor module, Master Bus 300, I/O communication and the engineering tool Control Builder A.

According to the Life Cycle Policy ABB will not “Remove from Active Sale” any product or family of products until an equivalent replacement to those products is available.

ABB is actively working on the development of evolution solutions for the Advant Controller 400 Series.

Advant Controller 160 maintenance release

The Advant Controller 160 system software has been revised to remove problems reported from the field. The new version 2.2/6 replaces all previous system software versions and is generally released for all Advant Power applications including IEC61508 certified turbine protection solutions up to SIL3.

Major improvements and bug fixes include the possibility to share S800 SOE information, the redundancy startup behavior of CI630/CI631 AF100 connectivity modules, problems with the serial interface causing the application in the controller to be stopped in rare cases and reconfiguration issues together with remote AI835 analog input modules.

The existing certification for all turbine protection solutions certified according IEC61508 up to SIL3 has been updated ensuring continued access to important bug fixes and improvements also for certified AC160 safety application.

Please refer to your regular business contacts for further questions.

Core Advant Power and related products

Latest Revisions

Product	Version	Released	Remarks
Connectivities and Operator Stations			
AdvaCommand	1.8/6	2004	
AdvaCommand Extensions 1	1	2006	Station backup on file
AdvaCommand Extensions 2	2	2007	Print to file
APC for OS500	2.3/4	2004	
APC AC160 for 800xA EDB	5.1.0	2012	PG2 graphic elements
APC AC160 for 800xA DAT	5.0.0	2008	
APC AC450 for 800xA	5.1.0	2011	64bit compatible; PG2 graphic elements
AEH Enterprise Historian	2.2/0	2000	
IMS Reports	2.1/0	2002	
AC100 OPC Server	5.1.0/1	2012	64bit support
System Software and Libraries			
APC AC450 UDPC version	2.1/2	1999	Support up to Advant Controller 450 2.3/9. See also “Coming soon” below
APC AC450 PC version	2.3/0	1999	FlashPROM version
Advant Controller 450	2.3/10	2012	
AC160 SSW	2.2/6	2012	See description on page 5
Engineering Tools			
CBA for Advant Power	1.3/1	2012	Win 7, Win 2008 Server 32 and 64 bit support
FCB	6.3/1	2012	Connect simultaneously to more than 9 PM665
ONB	3.1/1	2012	Win 7, Win 2008 Server support for PU410
Hardware			
PM665	PR: N	2002	Successor of PM645x with higher performance and capacity
CI630	PR: L FW w	2012	Improved redundancy switchover
CI631	PR: K FW w		
CI820V1	2.2/5	2013	Fixes issue described in APN2072, see page 7
CI869	PR: C	2010	AF100 interface for AC800M controller
CI527A		2006	3.3V PCI Support
DI651	PR: G FW e	2005	Support of DI651x DB element to avoid nuisance time-jitter alarms
DP640	PR: L FW e	2009	Fast Trip from low speed
CSM01	A	2008	Support module for SIL3 certified protection
PU410	1.0.1.0	2010	External RTA board

Coming soon

Product	Version	New Feature
Connectivities and Operator Stations		
APC AC160 for 800xA	5.1.x	PG2 and 64bit support
APC AC160 for 800xA	5.1.x	PG2 and 64bit support
System Software and Libraries		
APC AC450 UDPC version	2.1/2	Support for Advant Controller 450 2.3/10
Hardware		
CI630A	FW x	Improved robustness and fault finding
CI631A		

Latest Advant platform notes

APN #	Date	Subject
APN2073	2012-05-11	PM665 reset or acknowledge buttons might be activated randomly
APN2071	2012-04-18	PM665 watchdog and relay may not respond if execution of Application stops
APN2069Ra	2012-04-18	PM665 Soldering Issue
APN2058Rb	2012-04-11	Compatibility of CI630 and CI631
APN2072	2012-03-07	Single disturbance of a S800 I/O module may cause the CI820 warning terminal to toggle
APN2070	2011-06-15	AC160 controllers in multi-CPU configuration might remain in status “P8”
APN2068	2010-07-06	Backup CI820 does not start-up
APN2067	2010-04-15	Availability & Redundancy issues of CI630, CI631
APN2062	2010-02-25	CI630, CI631 FW t: Hanging AF100 bus master during startup
APN2066	2010-02-25	AC160 service data communication may cease
APN2064	2010-02-25	TC CH_TESTS: Identification for SIL3 overspeed protection solution
APN2063	2010-02-25	S600 modules may not be reconfigured
APN2061	2010-02-25	Limitation of system time: AC160 vs. AC450
APN2065	2010-02-25	Deficiencies of INTFSEL2 (AC450) and SEL2 (AC160)

About Advant platform notes

Advant platform notes are an additional service for ABB Power generation customers. They contain either more specific information targeted for Power Generation customers in addition to the standard Advant Product Bulletins available in the ABB Solutionsbank. Or they provide extra information not available as standard Advant Product Bulletins at all. If you are interested in receiving this information or have questions about specific issues, please contact the Global Execution Center for Advant Power in Switzerland (see last page).

Latest APC status reports

APC SR #	Date	Subject
CHPS-007	2011-12-23	APC AC160 for 800xA EDB: Compatibility with AC160 SSW
CHPS-008	2011-12-23	APC AC160 for 800xA EDB: Set-point change might not be bumpless

About APC status reports

APC status reports are available for all ABB customers with an Automation Sentinel subscription in the ABB Solutionsbank. They contain the latest information about pending issues and their resolution within the APC connectivity products provided by ABB Power Generation. For any questions or if you would like to get access to the ABB Solutionsbank, please contact the Global Execution Center for Advant Power in Switzerland (see last page).

Contact

Advant Power presence worldwide
We are here to support you

Advant Power Global Execution Center
ABB Switzerland – Power Systems
Matthias Bolliger
Bruggerstrasse 72
CH-5400 Baden, Switzerland
Phone: +41 (0)844 845 845
Email: plantcontrol.support@ch.abb.com

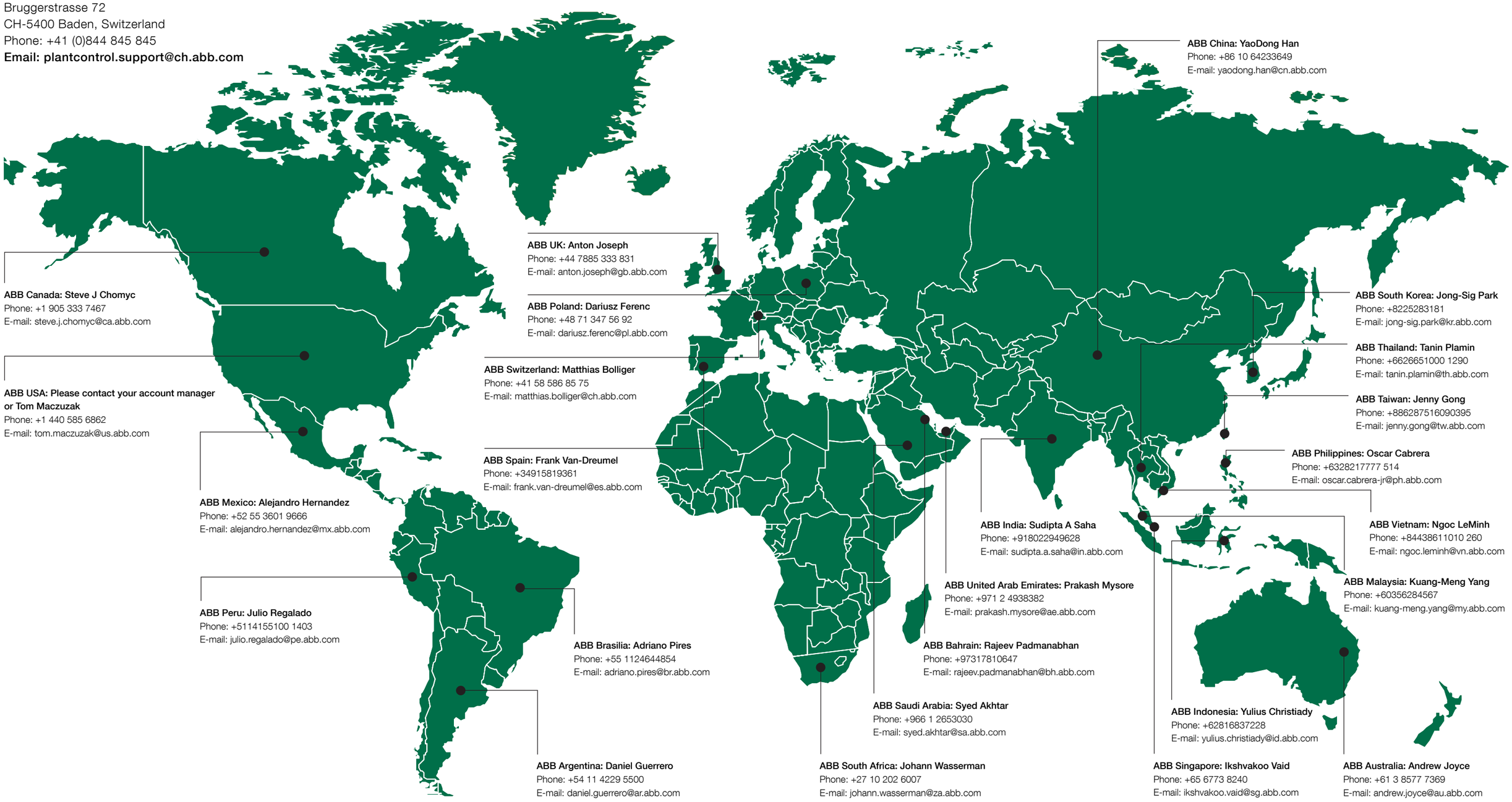


ABB Canada: Steve J Chomyc
Phone: +1 905 333 7467
E-mail: steve.j.chomyc@ca.abb.com

ABB USA: Please contact your account manager or Tom Maczuzak
Phone: +1 440 585 6862
E-mail: tom.maczuzak@us.abb.com

ABB Mexico: Alejandro Hernandez
Phone: +52 55 3601 9666
E-mail: alejandro.hernandez@mx.abb.com

ABB Peru: Julio Regalado
Phone: +5114155100 1403
E-mail: julio.regalado@pe.abb.com

ABB Brasilia: Adriano Pires
Phone: +55 1124644854
E-mail: adriano.pires@br.abb.com

ABB Argentina: Daniel Guerrero
Phone: +54 11 4229 5500
E-mail: daniel.guerrero@ar.abb.com

ABB UK: Anton Joseph
Phone: +44 7885 333 831
E-mail: anton.joseph@gb.abb.com

ABB Poland: Dariusz Ferenc
Phone: +48 71 347 56 92
E-mail: dariusz.ferenc@pl.abb.com

ABB Switzerland: Matthias Bolliger
Phone: +41 58 586 85 75
E-mail: matthias.bolliger@ch.abb.com

ABB Spain: Frank Van-Dreumel
Phone: +34915819361
E-mail: frank.van-dreumel@es.abb.com

ABB China: YaoDong Han
Phone: +86 10 64233649
E-mail: yaodong.han@cn.abb.com

ABB South Korea: Jong-Sig Park
Phone: +8225283181
E-mail: jong-sig.park@kr.abb.com

ABB Thailand: Tanin Plamin
Phone: +6626651000 1290
E-mail: tanin.plamin@th.abb.com

ABB Taiwan: Jenny Gong
Phone: +886287516090395
E-mail: jenny.gong@tw.abb.com

ABB Philippines: Oscar Cabrera
Phone: +6328217777 514
E-mail: oscar.cabrera-jr@ph.abb.com

ABB India: Sudipta A Saha
Phone: +918022949628
E-mail: sudipta.a.saha@in.abb.com

ABB Vietnam: Ngoc LeMinh
Phone: +84438611010 260
E-mail: ngoc.leminh@vn.abb.com

ABB United Arab Emirates: Prakash Mysore
Phone: +971 2 4938382
E-mail: prakash.mysore@ae.abb.com

ABB Malaysia: Kuang-Meng Yang
Phone: +60356284567
E-mail: kuang-meng.yang@my.abb.com

ABB Bahrain: Rajeev Padmanabhan
Phone: +97317810647
E-mail: rajeev.padmanabhan@bh.abb.com

ABB Saudi Arabia: Syed Akhtar
Phone: +966 1 2653030
E-mail: syed.akhtar@sa.abb.com

ABB Indonesia: Yulius Christiady
Phone: +62816837228
E-mail: yulius.christiady@id.abb.com

ABB South Africa: Johann Wasserman
Phone: +27 10 202 6007
E-mail: johann.wasserman@za.abb.com

ABB Singapore: Ikshvakoo Vaid
Phone: +65 6773 8240
E-mail: ikshvakoo.vaid@sg.abb.com

ABB Australia: Andrew Joyce
Phone: +61 3 8577 7369
E-mail: andrew.joyce@au.abb.com

Contact us
Advant Power Global Execution Center

ABB Switzerland Ltd
Power Systems
Bruggerstrasse 72
CH-5400 Baden, Switzerland
Phone: +41 (0)844 845 845
(customer contact center 24hours/365days)
Phone: +41 (0)58 585 88 80 (during office hours)
Email: **www.abb.com/powergeneration**

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